Claims

1. A method of material separation, in which
- a material, which comprises at least a first material component and a second material component, is introduced, together with a washing fluid, into a container (10) with at least one sedimentation chamber (12) and is subjected to a gravitational field,
- under influence of the gravitational field in the sedimentation chamber (12), the first material component is enriched in a sedimentation zone, which is bounded by a base (14), and
- the material with the enriched first material component is evacuated from the sedimentation zone via an opening (16) in the base (14),
characterized in that
- the material with the enriched first material component is continuously evacuated as a sediment film through the opening (16) in the base (14) and
- the washing fluid flows through the sediment film and, in the process, an at least partial displacement of the remaining second material component takes place from the sediment film.

2. The method as claimed in claim 1, characterized in that, after the washing fluid has flowed through it, the sediment film with the enriched first material component is introduced into at least one further sedimentation chamber (12) in which the process of enriching the first material component, the formation of a sediment film and the flow of the washing fluid onto the sediment film are repeated.

3. The method as claimed in claim 2, characterized in that the process of enriching the first material component and the flow onto the sediment film is repeated in a plurality of steps until a specified residual proportion of the second material component is attained.

4. The method as claimed in one of claims 1 to 3, characterized in that a fluid with a specific weight

which differs from that of the first material component is used as the washing fluid.

5. The method as claimed in one of claims 1 to 4, characterized in that, in the case of sedimentation chambers (12) arranged in cascade one above the other, the material to be separated is introduced into the container at an upper sedimentation chamber (12), upstream in the sedimentation direction, and the washing fluid is introduced into the container at a lower sedimentation chamber (12), downstream in the sedimentation direction, and in that, after flowing through the sediment film at the lower sedimentation chamber (12), the washing fluid subsequently flows against the sedimentation direction to the sediment film of the sedimentation chamber (12) above.

6. The method as claimed in one of claims 1 to 5, characterized in that the material with the enriched first material component is evacuated at one end of the container (10) and in that the washing fluid is evacuated with the second material component at an opposite end of the container (10).

7. The method as claimed in one of claims 1 to 6, characterized in that the material enriched with the first material component flows through an annular opening (16) in the base (14) and, in the process, an annular closed sediment film is formed, and in that the washing fluid flows through the annular closed sediment film from the outside to the inside or from the inside to the outside.

8. The method as claimed in one of claims 1 to 7, characterized in that kinetic energy is specifically introduced by means of a motive element in the container (10), in particular in the region of the sedimentation zone.

9. The method as claimed in one of claims 1 to 8, characterized in that a sedimentation direction, in which the sediment film flows, extends in the same

direction or opposite to a gravitational direction of the gravitational field.

10. An appliance for material separation, in particular for carrying out the method as claimed in one of claims 1 to 9, having a container (10), which comprises at least one sedimentation chamber (12) for accepting and sedimenting a material, which is bounded at one end by a base (14) which has an opening (16) for evacuating a sedimented material, a flow device for supplying a washing fluid being provided in the container (10), characterized in that

- the opening (16) in the base (14) of the sedimentation chamber (12) is configured as a gap by means of which a continuous sediment film can be generated during the evacuation of the sedimented material, and
- the flow device comprises at least one duct (18, 20), which is arranged in a region of the outlet of the sediment film from the gap and is configured for the approach flow of the washing fluid through the sediment film.

11. The appliance as claimed in claim 10, characterized in that the gap in the base (14) of the sedimentation chamber (12) has an annular configuration in order to form an annular sediment film.

12. The appliance as claimed in claim 11, characterized in that an inner duct (20) is arranged as feed duct within the annular sediment film and in that the flow device has an annular outer duct (18) as evacuation duct, which surrounds the annular sediment film and is configured for evacuating the washing fluid which flows through the sediment film.

13. The appliance as claimed in claim 11 or 12, characterized in that an outer duct (18) is configured as an annular feed duct and surrounds the annular sediment film, and in that an inner duct (20) is arranged as evacuation duct within the annular sediment film and is configured for evacuating the washing fluid which flows through the sediment film.

14. The appliance as claimed in one of claims 10 to 13, characterized in that a plurality of sedimentation chambers (12) are arranged in cascade one above the other in a container (10).

15. The appliance as claimed in claim 14, characterized in that the evacuation duct of a sedimentation chamber (12) has a conduit connection to the feed duct of a sedimentation chamber (12) upstream in the sedimentation direction, and in that the gap (16) of a sedimentation chamber (12) is arranged immediately above the downstream sedimentation chamber (12) in the sedimentation direction.

16. The appliance as claimed in one of claims 10 to 15, characterized in that the base (14) of the sedimentation chamber (12) is configured as a funnel shape toward the gap (16).

17. The appliance as claimed in one of claims 10 to 16, characterized in that the sedimentation chamber (12) has a rotationally symmetrical configuration relative to a center line, and in that the sedimentation chamber (12) has at least two annular wall elements (22, 25; 24, 28), of which at least one wall element (22; 25, 28) is configured conically relative to the center line.

18. The appliance as claimed in claim 17, characterized in that a stand (26) is provided which is arranged parallel to and, in particular, coaxial with the center line, and in that at least one radially inwardly located wall element (25; 28) of the sedimentation chamber (12) is fastened to the stand (26).

19. The appliance as claimed in claim 18, characterized in that the stand (26) is supported so that it can be moved relative to the container (10).

20. The appliance as claimed in claim 19, characterized in that the stand (26) is rotatably supported and is rotationally driven by a motor.

21. The appliance as claimed in one of claims 18 to 20, characterized in that the stand (26) can be displaced axially.

22. The appliance as claimed in one of claims 18 to 21, characterized in that the stand (26) is hollow and is configured with penetrations (30) for guiding the washing fluid within the stand (26).

23. The appliance as claimed in one of claims 10 to 22, characterized in that the container (10) has an essentially cylindrical configuration relative to a center line.

24. The appliance as claimed in one of claims 10 to 23, characterized in that a base region (32) of the container (10) has a conical configuration and is provided with a central drain (34) and an annular feed (36) for the washing fluid.

25. The appliance as claimed in claim 24, characterized in that a settling zone (43) is provided for collecting the washing fluid and the separated second material component at an end of the container (10) opposite to the base region (32), and in that an inlet (40), for as yet untreated material, opens into the sedimentation chamber or chambers (12) below the settling zone in the container (10).

26. The appliance as claimed in one of claims 10 to 25, characterized in that a plurality of containers (10) are connected in parallel and/or in series.

27. The appliance as claimed in one of claims 10 to 26, characterized in that the gap is configured between two boundary walls (52, 54), of which a first boundary wall (52) is longer than the second boundary wall (54).